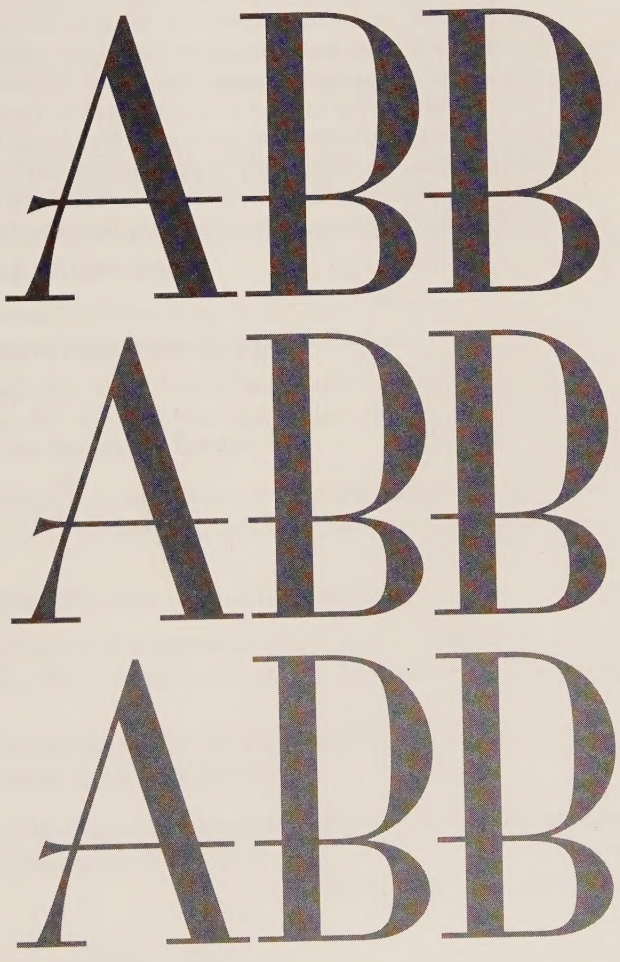
# Archives of Biochemistry and Biophysics




Volume 352, 1998

ACADEMIC PRESS

Copyright © 1998 by Academic Press

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the Publisher. *Exceptions:* It is the policy of Academic Press that authors need not obtain permission in the following cases only: (1) to use their original figures or tables in their future works; (2) to make copies of their papers for use in their classroom teaching; and (3) to include their papers as part of their dissertations.

The appearance of the code at the bottom of the first page of an article in this journal indicates the Publisher's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1998 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-9861/98 $25.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

# CONTENTS OF VOLUME 352

Number 1, April 1, 1998


## BIOLOGICAL OXIDATIONS: FREE RADICALS, NITRIC OXIDE, ANTIOXIDANTS, AND P450 REACTIONS

Electrochemical Oxidation of *N*-Acyldopamines and Regioselective Reactions of Their Quinones with *N*-Acetylcysteine and Thiourea *Xi Huang, Rongda Xu, M. Dale Hawley, Theodore L. Hopkins, and Karl J. Kramer* 19

Hemin-Enhanced Resistance of Human Leukemia Cells to Oxidative Killing: Antisense Determination of Ferritin Involvement *Fubao Lin and Albert W. Girotti* 51

Mutational Analysis of the Four α-Helix Bundle Iron-Loading Channel of Rat Liver Ferritin *Jia-Hsin Guo, Shu-Hui Juan, and Steven D. Aust* 71

Nitration of Veratryl Alcohol by Lignin Peroxidase and Tetranitromethane *Dawei Sheng, Dinesh K. Joshi, and Michael H. Gold* 121

## DNA REPLICATION, RECOMBINATION, AND REPAIR; TRANSCRIPTION; MECHANISMS OF ONCOGENIC TRANSFORMATION

Expression of Functional Aromatic Hydrocarbon Receptor and Aromatic Hydrocarbon Nuclear Translocator Proteins in Murine Bone Marrow Stromal Cells *Amy L. Lavin, Denise J. Hahn, and Thomas A. Gasiewicz* 9

Protein Tyrosine Kinase Inhibitors Block Tumor Necrosis Factor-Induced Activation of Nuclear Factor-κB, Degradation of IκBα, Nuclear Translocation of p65, and Subsequent Gene Expression *K. Natarajan, Sunil K. Manna, Madan M. Chaturvedi, and Bharat B. Aggarwal* 59

Overexpression, Single-Step Purification, and Site-Directed Mutagenetic Analysis of Casbene Synthase *Ke-xue Huang, Qiu-long Huang, and A. I. Scott* 144

## ENZYME STRUCTURE AND MECHANISMS; CELLULAR REGULATION; PHOSPHORYLATION AND DEPHOSPHORYLATION

Structural Studies of α-*N*-Acetylgalactosaminidase: Effect of Glycosylation on the Level of Expression, Secretion Efficiency, and Enzyme Activity *A. Zhu, Z-K. Wang, and R. Beavis* 1

Molecular Cloning and Characterization of a Novel Nuclear Protein Kinase in Mice *Igor Zelko, Ryuji Kobayashi, Paavo Honkakoski, and Masahiko Negishi* 31

Studies on the Protein Tyrosine Phosphatase Activity of Tartrate-Resistant Acid Phosphatase *Jussi M. Halleen, Helena Kaija, Jan J. Stepan, Pirkko Vihko, and H. Kalervo Väänänen* 97

3-Hydroxy-3-methyl-glutaryl-CoA Reductase in *Trypanosoma* (*Schizotrypanum*) *cruzi:* Subcellular Localization and Kinetic Properties *Juan L. Concepcion, Dolores Gonzalez-Pacanowska, and Julio A. Urbina* 114

## LIPIDS, LIPID MEDIATORS, AND GLYCOLIPIDS

Alkaline Lipase from Brain: Is It the Same Enzyme as Pancreatic Lipase from Pancreas? *Takahiro Tsujita, Michihiro Sumida, Maho Sumiyoshi, Kenji Kameda, and Hiromichi Okuda* 44

## MEMBRANE PROTEINS AND TRANSPORT; INTRACELLULAR SIGNALS; CYTOKINES AND RECEPTORS

Characterization of the Secondary Structure and Membrane Interaction of the Putative Membrane Anchor Domains of Prostaglandin $I_2$ Synthase and Cytochrome P450 2C1 *Yue-zhen Lin, Kenneth K. Wu, and Ke-He Ruan* 78


7 416HI XL 3379 9/98 31249-200 NULE

The Choline Kinase Inhibitor Hemicholinium-3 Can Inhibit Mitogen-Induced DNA Synthesis Independent of Its Effect on Phosphocholine Formation *Karan S. Crilly, Masahiro Tomono, and Zoltan Kiss* 137

**PLANT BIOCHEMISTRY AND MOLECULAR BIOLOGY**

Roles and Microenvironments of Tryptophanyl Residues of Spinach Phosphoribulokinase *Hillel K. Brandes, Frank W. Larimer, Tse-Yuan S. Lu, Joykrishna Dey, and Fred C. Hartman* 130

**PROTEIN STRUCTURE AND FUNCTION; PROTEASES, PROTEIN TURNOVER, AND POST-TRANSLATIONAL PROCESSING**

The Leu-3 Residue of *Serratia marcescens* Metalloprotease Inhibitor Is Important in Inhibitory Activity and Binding with *Serratia marcescens* Metalloprotease *Kwang Hee Bae, Il Chul Kim, Ki Seok Kim, Yong Chul Shin, and Si Myung Byun* 37

Degradation of Yeast Cytochromes c Dependent and Independent on Its Physiological Partners *David A. Pearce and Fred Sherman* 85

Active-Site Disruption in Native *Limulus* Hemocyanin and Its Subunits by Disulfide-Bond Reductants: A Chemical Probe for the Study of Structure–Function Relationships in the Hemocyanins *Richard Topham, Shirley Tesh, Gregory Cole, Danielle Mercatante, Amy Westcott, and Celia Bonaventura* 103

**SPECIAL READINGS**

Levels of Cyclooxygenase-1 and -2 mRNA Expression at Various Stages of Acute Gastric Injury Induced by Ischemia–Reperfusion in Rats *Yosuke Kishimoto, Kouichirou Wada, Kentaro Nakamoto, Hironaka Kawasaki, and Junichi Hasegawa* 153

Number 2, April 15, 1998

**BIOLOGICAL OXIDATIONS: FREE RADICALS, NITRIC OXIDE, ANTIOXIDANTS, AND P450 REACTIONS**

Bilirubin Is an Effective Antioxidant of Peroxynitrite-Mediated Protein Oxidation in Human Blood Plasma *Maurizio Minetti, Cinzia Mallozzi, Anna Maria Michela Di Stasi, and Donatella Pietraforte* 165

One of the Fumarate Reductase Isoenzymes from *Saccharomyces cerevisiae* Is Encoded by the *OSM1* Gene *Haruhiro Muratsubaki and Keiichiro Enomoto* 175

Dicyclohexylcarbodiimide Inhibits Proton Pumping in Ubiquinol:Cytochrome c Oxidoreductase of *Rhodobacter sphaeroides* and Binds to Aspartate-187 of Cytochrome b *Yudong Wang, Victor Obungu, and Diana S. Beattie* 193

Electron Transport-Linked Ubiquinone-Dependent Recycling of α-Tocopherol Inhibits Autooxidation of Mitochondrial Membranes *Achim Lass and Rajindar S. Sohal* 229

The Familial Amyotrophic Lateral Sclerosis-Associated Amino Acid Substitutions E100G, G93A, and G93R Do Not Influence the Rate of Inactivation of Copper- and Zinc-Containing Superoxide Dismutase by $H_2O_2$ *Stefan I. Liochev, Li Li Chen, Robert A. Hallewell, and Irwin Fridovich* 237

Changes in the Hepatic Mitochondrial Respiratory System in the Transition from Weaning to Adulthood in Rats *Lillà Lionetti, Susanna Iossa, Giovanna Liverini, and Martin D. Brand* 240

Differential Regulation of Extracellular Signal-Regulated Kinase and Nuclear Factor-κB Signal Transduction Pathways by Hydrogen Peroxide and Tumor Necrosis Factor *Shawn A. Milligan, Michael W. Owens, and Matthew B. Grisham* 255

CYP2M1: Cloning, Sequencing, and Expression of a New Cytochrome P450 from Rainbow Trout Liver with Fatty Acid (ω-6)-Hydroxylation Activity *Yea-Huey Yang, Jun-Lan Wang, Cristobal L. Miranda, and Donald R. Buhler* 271

Oxidative DNA Damage in Mouse Heart, Liver, and Lung Tissue Due to Acute Side-Stream Tobacco Smoke Exposure *David J. Howard, Laura A. Briggs, and Chris A. Pritsos* 293

**BIOPHYSICAL CHEMISTRY AND X-RAY CRYSTALLOGRAPHY**

Imidazole Binding to Horse Metmyoglobin: Dependence upon pH and Ionic Strength *Josephine Lin, Lidia B. Vitello, and James E. Erman* 214

**DNA REPLICATION, RECOMBINATION, AND REPAIR; TRANSCRIPTION; MECHANISMS OF ONCOGENIC TRANSFORMATION**

Capacity of 1,25-Dihydroxyvitamin D to Stimulate Expression of Calbindin D Changes with Age in the Rat *H. J. Armbrecht, M. A. Boltz, S. Christakos, and M. E. H. Bruns* 159

AP-1 Activity Affects the Levels of Induced Erythroid and Megakaryocytic Differentiation of K562 Cells *Dan Rosson and Thomas G. O'Brien* 298

**ENZYME STRUCTURE AND MECHANISMS; CELLULAR REGULATION; PHOSPHORYLATION AND DEPHOSPHORYLATION**

A Kinetic Study of Site-Directed Mutants of *Escherichia coli* ADP-Glucose Pyrophosphorylase: The Role of Residue 295 in Allosteric Regulation *Christopher R. Meyer, Jennifer Yirsa, Bruce Gott, and Jack Preiss* 247

Expression of Pyruvate Dehydrogenase Isoforms during the Aerobic/Anaerobic Transition in the Development of the Parasitic Nematode *Ascaris suum:* Altered Stoichiometry of Phosphorylation/Inactivation *Yue-Jin Huang, Daniel Walker, Wei Chen, Michele Klingbeil, and Richard Komuniecki* 263

Kinetics of Enzymes with Isomechanisms: Britton Induced Transport Catalyzed by Bovine Carbonic Anhydrase II, Measured by Rapid-Flow Mass Spectrometry *Dexter B. Northrop and Frank B. Simpson* 288

Identification of a Novel Human Glutathione *S*-Transferase Using Bioinformatics *Suxing Liu, Steven P. Stoesz, and Cecil B. Pickett* 306

**LIPIDS, LIPID MEDIATORS, AND GLYCOLIPIDS**

The Role of N-Glycosylatione of Human Thromboxane $A_2$ Receptor in Ligand Binding *Nan Chiang and Hsin-Hsiung Tai* 207

**PROTEIN STRUCTURE AND FUNCTION; PROTEASES, PROTEIN TURNOVER, AND POST-TRANSLATIONAL PROCESSING**

Functional Consequences of Mutations in Ser-52 and Ser-60 in Human Blood Coagulation Factor VII *Masaki Iino, Donald C. Foster, and Walter Kisiel* 182

Production and Characterization of Two Variants of Human Cystatin SA Encoded by Two Alleles at the *CST2* Locus of the Type 2 Cystatin Gene Family *Eiichi Saitoh, Kiyoshi Minaguchi, and Osamu Ishibashi* 199

Radiation Effects on the Native Structure of Proteins: Fragmentation without Dissociation *J. H. Miller, D. A. Fedoronko, B. D. Hass, M. Myint, and E. S. Kempner* 281

Tissue Transglutaminase-Catalyzed Formation of High-Molecular-Weight Aggregates *in Vitro* Is Favored with Long Polyglutamine Domains: A Possible Mechanism Contributing to CAG-Triplet Diseases *Vittorio Gentile, Carlo Sepe, Menotti Calvani, Mariarosa A. B. Melone, Roberto Cotrufo, Arthur J. L. Cooper, John P. Blass, and Gianfranco Peluso* 314

Author Index for Volume 352 322

NOTICE

The Subject Index for Volume 352 will appear in the December 15, 1998, issue as part of a cumulative index for the year 1998.